CLAIMS:

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SOI device is not indicated.

1	1.	A method for performing passive voltage contrast on a silicon on insulator	
2	(SOI) device comprising the steps of:		
3		grinding a first portion of a substrate of said SOI device with a dimpling tool;	
4		etching a second portion of said substrate of said SOI device with	
5	tetran	nethylammonium hydroxide (TMAH) following said grinding of said SOI	
6	devic	e with said dimpling tool;	
7		etching a third portion of said substrate and a portion of a box insulator of said	
8	SOI	device with hydrofluoric acid (HF) following said etching of said SOI device	
9	with	said TMAH;	
10		applying a conductive coating to said etched portions of said substrate and	
11	said l	oox insulator of said SOI device;	
12		applying said conductive coating to a portion of a body of said SOI device;	
13	and		
14		directing a beam of electrons at said SOI device to detect a secondary	
15			
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1	2.	The method as recited in claim 1, wherein said beam of electrons is directed at	
2	a gat	e oxide area on said SOI device.	
1	3.	The method as recited in claim 2, wherein if said secondary emission results	
2		aid gate oxide area appearing bright then a breakdown in said gate oxide of said	
	SOI device is indicated.		
3	801	device is indicated.	
1	4.	The method as recited in claim 2, wherein if said secondary emission results	

in said gate oxide area appearing dark then a breakdown in said gate oxide of said

- 5. The method as recited in claim 1, wherein said etching of said SOI device with said HF stops at a body of said SOI device.
- 1 6. The method as recited in claim 1 further comprising the step of: 2 polishing said SOI device to a first metal layer.
- 7. The method as recited in claim 6 further comprising the step of:
 gluing a dummy integrated circuit to a top surface of said SOI device.
- 1 8. The method as recited in claim 7 further comprising the step of:
- 2 removing said dummy integrated circuit following etching said SOI device 3 with said HF.
- 1 9. The method as recited in claim 1, wherein said conductive coating comprises a carbon ink coating.

1	10. A silicon on insulator (SOI) device, comprising:	
2	a substrate, wherein a first portion of said substrate is ground using a dimpling	
3	tool, wherein a second portion of said substrate is etched using tetramethylammonium	
4	hydroxide (TMAH), wherein a third portion of said substrate is etched using	
5	hydrofluoric (HF) acid;	
6	a box insulator overlaying said substrate, wherein a portion of said box	
7	insulator is etched using said HF acid;	
8	a body overlaying said box insulator; and	
9	a polysilicon gate separated from said body by a gate oxide;	
10	wherein a beam of electrons is directed at an area of said gate oxide to	
11	determine if there is a breakdown in said gate oxide.	
	to the second second from the second is	
1	11. The SOI device as recited in claim 10, wherein said beam of electrons is	
2	directed at said gate oxide area to detect a secondary emission from said SOI device.	
	12. The SOI device as recited in claim 11, wherein if said secondary emission	
1	12. The SOI device as recited in claim 11, wherein it said see so ide of results in said gate oxide area appearing bright then a breakdown in said gate oxide of	
2	results in said gate oxide area appearing origin then a broaked with a broaked wi	

3 said SOI device is not detected.

The SOI device as recited in claim 11, wherein if said secondary emission

results in said gate oxide area appearing dark then a breakdown in said gate oxide of

- 1 14. The SOI device as recited in claim 10, wherein said body is not etched using said HF.
- 1 15. The SOI device as recited in claim 10, wherein a conductive coating is applied
- 2 to said etched portions of said substrate and said box insulator of said SOI device and
- 3 applied to a portion of said body of said SOI device.

said SOI device is detected.

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1	16. A silicon on insulator (SOI) device, comprising:		
2	a substrate, wherein a first portion of said substrate is ground using a dimpling		
	tool, wherein a second portion of said substrate is etched using tetramethylammonium		
3	hydroxide (TMAH), wherein a third portion of said substrate is etched using		
4			
5	hydrofluoric (HF) acid; a box insulator overlaying said substrate, wherein a portion of said box		
6			
7	insulator is etched using said HF acid;		
8	a body overlaying said box insulator; and		
9	a contact interconnecting said body to a metal layer;		
10	wherein a beam of electrons is directed at an area of said contact to determine		
11	if said contact is open.		
1	17. The SOI device as recited in claim 16, wherein said beam of electrons is		
2	directed at said contact area to detect a secondary emission from said SOI device.		
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1	18. The SOI device as recited in claim 17, wherein if said secondary emission		
2	results in said contact area appearing bright then a closed contact is detected.		
2			
1	19. The SOI device as recited in claim 17, wherein if said secondary emission		
2	results in said contact area appearing dark then an open contact is detected.		
2			
1	20. The SOI device as recited in claim 16, wherein said body is not etched using		
	said HF.		
2	Salu III.		
1	21. The SOI device as recited in claim 16, wherein a conductive coating is applied		
1	21. The SOI device as recited in claim 10, wherein a conductive conductive to said etched portions of said substrate and said box insulator of said SOI device and		
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3	applied to a portion of said body of said SOI device.		

	22. A method for making a silicon on insulator (SOI) device suitable for
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2	performing passive voltage contrast comprising the steps of:
3	grinding a first portion of a substrate of said SOI device with a dimpling tool;
4	etching a second portion of said substrate of said SOI device with
5	tetramethylammonium hydroxide (TMAH) following said grinding of said SOI
6	device with said dimpling tool;
7	etching a third portion of said substrate and a portion of a box insulator of said
8	SOI device with hydrofluoric acid (HF) following said etching of said SOI device
9	with said TMAH;
10	applying a conductive coating to said etched portions of said substrate and
11	said box insulator of said SOI device; and
12	applying said conductive coating to a portion of a body of said SOI device